इंटरनेट मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”
Mazdoor Kisan Shakti Sangathan
“The Right to Information, The Right to Live”

“पुराने को छोड नये के तरफ”
Jawaharlal Nehru
“Step Out From the Old to the New”

IS 2426 (1985): Test chart for bench drilling machines [PGD 3: Machine Tools]

“ज्ञान से एक नये भारत का निर्माण”
Satyanarayan Gangaram Pitroda
“Invent a New India Using Knowledge”

Act Number 22 of 2005
The Indian Parliament
RIGHT TO INFORMATION

Made Available By
Public.Resource.Org

“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”
Bhartṛhari—Nītiśatakam
“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE

BRUTUM FULMEN
IGNORANTIA JURIS NON EXCUSAT
PROTECTED BY COPYRIGHT

UDC 621·952 : 620·1 (084)

Indian Standard

TEST CHART FOR BENCH DRILLING MACHINES

(First Revision)

1. Scope — Describes both geometrical and practical tests on general purpose and normal accuracy bench drilling machines, and gives the corresponding permissible deviations with reference to IS : 2063-1962 'Code for testing machine tools'.

1.1 It deals only with the verification of accuracy and applies neither to the testing of the running of the machine (vibrations, abnormal noises, stick-slip motion of components, etc) nor to the machine characteristics (speeds, feeds, etc) which shall generally be checked before testing the accuracy.

2. Preliminary Remarks

2.1 To apply these tests, reference shall be made to IS : 2063-1962 especially for the installation of the machine before testing, warming up of spindles and other moving parts, description of measuring methods and recommended accuracy of testing equipment.

2.2 The sequence in which the geometrical tests are given is related to the sub-assemblies of the machine and does not define the practical order of testing. In order to make checking or mounting of instruments easier, tests may be carried out in any convenient sequence.

2.3 When inspecting a machine, it is necessary to carry out all the tests described in this standard, excepting those tests which may be omitted in mutual agreement between the buyer and the manufacturers.

2.4 When establishing the tolerance for a measuring range different from that indicated in this standard (*see* **2.3.1.1** of IS : 2063-1962), it shall be taken into consideration that the minimum tolerance is 0·01 mm. For any proportional value, the calculated value shall be rounded off to the nearest 0·005 mm. However, the least count of all measuring instruments need not be finer than 0·01 mm.

2.5 Whenever alternate methods of testing are suggested, the choice of the actual method of testing is left to the manufacturer.

2.6 For the purpose of this standard, various methods of expressing permissible deviation are employed, each having a particular type of application. The methods employed are as follows:

'000/000 for deviations of perpendicularity which are ratios.

000 for any length of 000 for deviations of straightness and parallelism; this expression is used in fact for local permissible deviations, the measuring length being obligatory.

000 for 000 for deviations of straightness and parallelism; this expression is used to recommend a measuring length but in this case proportionality rule comes into operation if the measuring length differs from those indicated'.

3. Testing Instruments — The testing instruments shall be of the approved type and shall be calibrated at a recognised temperature conforming to the relevant Indian Standards'.

4. Accuracy Requirements — The tests to be carried out, the instruments required, the maximum permissible deviations and the manner of carrying out the tests shall be as detailed in the test chart.

Machine Tools, Machine Tool Elements and Woodworking Machines Sectional Committee, EDC 11, Machine Tool-Basics Subcommittee, EDC 11 : 14 [Ref : Doc : EDC 11 (4149)]

Adopted 22 July 1985

© May 1986, ISI

Gr 3

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Type ....

Order No ....

Customer ....

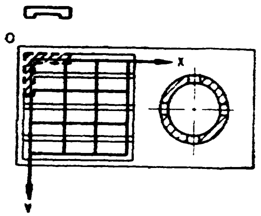
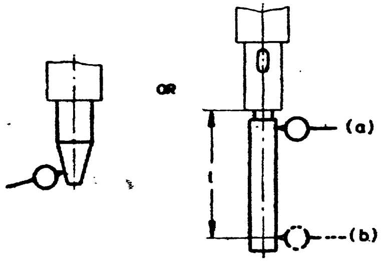
Machine No ....

Date ....

Inspector ....

1 GEOMETRICAL TEST

All dimensions in millimetres.

Sl No.	Figure	Object	Measuring Instruments	Reference to IS : 2063-1962 and/or Instruction for Testing	Permissible Deviations	Actual Error
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1		Flatness of clamping surface of base	Precision level or straight-edge and gauge block	5.2.2.2; 5.2.2.3	0·03 for any measuring length of 300 (flat or concave only)	
2		True running of spindle taper: a) On the external taper or near the nose for taper bore, and b) At a distance 100 / from the spindle nose for taper bore	Dial gauge and test mandrel	5.5.1.2 (b) and A-1	a) 0·015 b) 0·020 for $l = 100$ a) 0·020 b) 0·035 for $l = 200$	

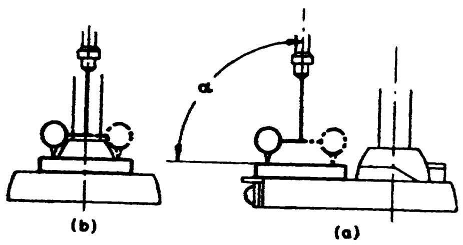
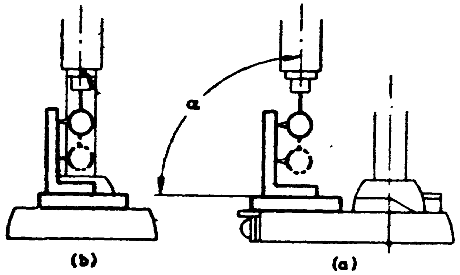
AMENDMENT NO. 1 DECEMBER 1996
TO
IS 2426 : 1985 TEST CHART FOR BENCH DRILLING MACHINES

(First Revision)

(*Page* 1, *clauses* **1, 2** *and* **2.4**) — Substitute 'IS 2063 : 1988/ ISO 230/ 1 - 1986 Acceptance code for machine tools — Geometric accuracy of machines operating under no-load or finishing conditions (*first revision*)' *for* 'IS 2063 : 1962 Code for testing machine tools'.

(PE 03)

Reprography Unit, BIS, New Delhi, India

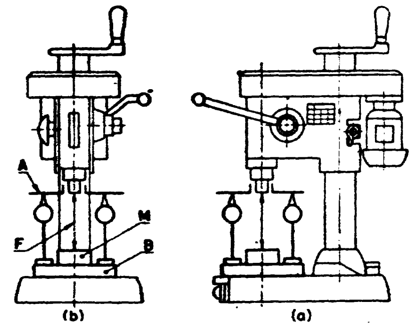
(1)	(2)	(3)	(4)	(5)	(6)	(7)
3		Squareness of the spindle axis to the base: a) in the plane of symmetry of the machine, and b) in the plane perpendicular to the plane of symmetry of the machine	Dial gauge and straightedge	**5.1.3.2 (a)** Test to be carried out at the extreme positions of the drill head	a) 0·06/300* with α<90° b) 0·06/300* *Distance between the two points touched	
4		Squareness of the base surface to the vertical movement of the quill: a) in the plane of symmetry of the machine, and b) in the plane perpendicular to the plane of symmetry of the machine	Dial gauge, straightedge and square	**5.4.2.2**	a) 0·1/300 with α<90° b) 0·1/300	

Type........................ Order No................. Customer.................

Machine No.............. Date........................ Inspector.................

II PRACTICAL TEST

All dimensions in millimetres.

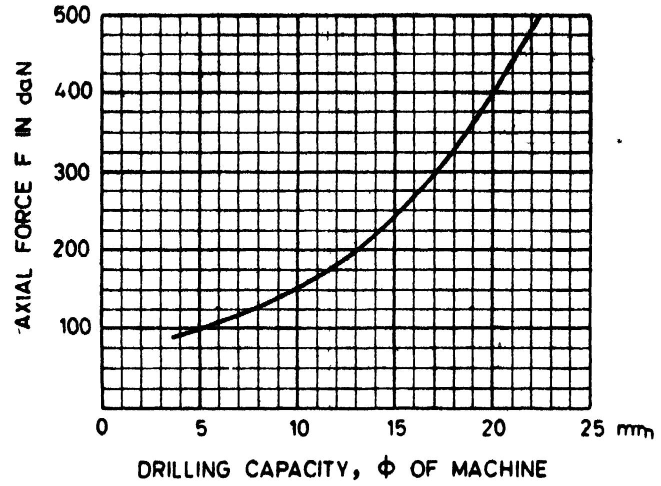
Sl No.	Figure	Object	Measuring Instruments	Reference to IS : 2063-1962 and/or Instructions for Testing	Permissible Deviations	Actual Error
(1)	(2)	(3)	(4)	(5)	(6)	(7)
5		Measurement of deflection of the spindle axis from its position square with the table under the axial force applied to the spindle: a) in the plane of symmetry of the machine, and b) in the plane perpendicular to the plane of symmetry of the machine	Special equipment or dial gauges and load cell	It is not necessary to follow the test code IS : 2063. A drilling test shall not be carried out but an axial force *F* shall be exerted on the spindle nose, using the base surface as a support The base *B* of the load cell shall be of sufficient area and rigidity to eliminate any deformation of the table. The application of force *F* and the measurement of the deflection under load of the axis of the spindle in relation to the base surface shall be made directly on the spindle nose with the aid of special equipment *A* mounted directly on the spindle nose	2/1 000	

APPENDIX A

(*Practical Test No. 1*)

GRAPH GIVING THE AXIAL FORCE *F* AS A FUNCTION OF THE DRILLING CAPACITY ϕ OF BENCH DRILLING MACHINE

Note — The graph only gives typical values representing average thrusts when drilling medium steel (tensile strength R^* ≈ 0·55 to 0·65 GPa) with freshly sharpened drills.



Note — For $\phi >$ 25 mm, the graph is approximately rectilinear.

EXPLANATORY NOTE

This standard was first published in 1963, which was in line with IS : 2445-1963. 'Test chart for pillar type vertical drilling machines'. Only such of the tests needed for bench drilling machines had been identified with all other details and permissible values were the same as in IS : 2425-1963. Consequent upon the revision of IS : 2425 to align with ISO 2773/I-1973 'Test conditions for pillar type vertical drilling machines—Testing of accuracy; Part I : Geometrical test' and 'ISO 2773/II-1973 Part II Practical test', the Committee decided to revise this standard also. The tests as applicable to bench drilling machines have been selected from ISO 2773 (Part I and Part II)-1973 to formulate the revised version of this standard.

---

*Provisional value R ≈ 55 to 65 hbar.

Printed at Arcee Press, New Delhi, India